



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

EXERCISES.

359

FOUR normals can be drawn from a point to a limaçon ; if the feet of two of the normals lie on a line through the node, the feet of the other two lie on a line through the focus. [*Frank Morley.*]

360

NORMALS at the ends of a nodal chord of a given limaçon mark off an involution on the axis of the curve. [*Frank Morley.*]

361

LET r be the base of a system of numeration. Find the condition that in the quotient of the number

$$A = aaa \dots a \quad (r - 1 \text{ places})$$

divided by $r - 1$, there shall appear all but one of the digits of the system (0 excluded), and determine the lacking digit. [*Edgar H. Johnson.*]

362

THE sides of a plane triangle are a, b, c . It is required to determine the radius of the circle circumscribing the escribed circles of this triangle.

[*Artemas Martin.*]

363

A HOLLOW sphere, external and internal radii R and r , rolls down an inclined plane in time t ; after the cavity is half filled with water it rolls down the same plane in time t' . Determine the specific gravity of the sphere.

[*Artemas Martin.*]

364

FIND two complete integrals of the equation

$$\left[\frac{\partial z}{\partial x} \right]^2 + \left[\frac{\partial z}{\partial y} \right]^2 = \frac{x - y}{z}. \quad \text{[*Geo. R. Dean.*]}$$

365

SHOW that

$$x^3 + y^3 + z^3 - 3xyz = a^3$$

is a surface of revolution and find its axis.

[*Geo. R. Dean.*]